

**REMARKS**

The claims have been amended to clarify the invention. In particular, claim 3 has been amended to delete the term “about” from the claim, and claim 4 has been amended to delete the phrase “comprising a sequence” from the claim. Claims 2 and 15-22 have been canceled as drawn to non-elected subject matter. Applicants reserve the right to prosecute non-elected subject matter in subsequent divisional applications. Claims 9-14, however, have been retained as methods of use of the compositions of matter of claim 1 that depend from and are of the same scope as claim 1 and are therefore subject to rejoinder pending allowance of claim 1 in accordance with *in Re Ochiai* and the MPEP § 821.04.

The Examiner stated that claims 1 and 3-8 are currently under prosecution.

**Objections and Rejections Withdrawn**

The Examiner stated that the following grounds of objection and rejection are withdrawn:

The rejection of claims 1 and 3-8 under 35 U.S.C. § 112, first paragraph as containing subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention, in particular, with respect to the term “cDNA encoding a protein”;

The rejection of claims 1, 3, and 5-8 under 35 U.S.C. § 112, second paragraph, as being vague and indefinite for the term “isolated cDNA [...] encoding a protein”;

The rejection of claim 8 under 35 U.S.C. § 112, second paragraph, as being vague and indefinite in reciting “using a cDNA to produce a protein”; and

The rejection of claim 4 under 35 U.S.C. § 102(b) as being anticipated by NCI-CGAP Database (GenBank Accession No. A1079538, 1988).

**Response to Applicants Remarks**

The Examiner reviewed applicants arguments regarding the inclusion of hyperlinks in the specification (which applicants deleted in the previous response) and concluded that in the instant application, the specification referred to hyperlinks that connect to widely used, publicly available databases, and reminded applicants that it is not necessary to disclose that which is widely known in the art.

**35 U.S.C. § 112, First Paragraph, Rejection of Claims 1 and 3-8**

The Examiner has maintained the rejection of claims 1 and 3-8 under 35 U.S.C. § 112, first paragraph as containing subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention for part of the reasons set forth in the Office Action mailed December 3, 2002. The Examiner reiterated the allegations that the specification does not describe the structure of a nucleic acid molecule encoding a variant of the polypeptide of SEQ ID NO:2 having an amino acid sequence that is at least 95% identical to SEQ ID NO:2; nor does the specification describe a cDNA comprising the polynucleotide sequence of SEQ ID NO:20 having at least 90% identity to SEQ ID NO:20. As such, the Examiner stated, the description of the claimed invention would not be sufficient to reasonably convey to the skilled artisan that applicants had possession of the claimed invention at the time the application was filed.

The Examiner further cited Skolnick et al. (Trends in Biotechnology 18:34-39, 2000), as evidence of the alleged inaccuracy of assigning functional activities for any particular protein or protein family based on sequence homology, and therefore as evidence of the unpredictability in the art for assigning variants of a polypeptide that would be found to be functionally identical.

**Applicants Response**

Applicants reiterate the basic argument presented previously in the Response filed 2/24/03 that the specification provides an adequate written description of the claimed variants of SEQ ID NO:2 in terms of chemical and structural properties of SEQ ID NO:2 and that a recitation of functional characteristics is not an absolute requirement for fulfilling the written description requirement.

In addition, however, applicants submit that while the Examiner has cited literature identifying some of the difficulties that may be involved in predicting protein function, (i.e., Skolnick et al.) none suggests that functional homology cannot be inferred by a reasonable probability in this case. Most important, none contradicts Brenner's basic rule that sequence homology in excess of 40% over 70 or more amino acid residues yields a high probability of functional homology as well. At most, these articles individually and together stand for the proposition that it is difficult to make predictions about function with certainty.

For these reasons, and those presented in the previous Response to Office Action,

applicants submit that with the extensive chemical and structural descriptions of SEQ ID NO:2 recited at pages 10-11 of the specification, as well as specific variants of SEQ ID NO:20 recited at page 12 of the specification, one skilled in the art would recognize applicants possession of the claimed variants, and respectfully request withdrawal of the rejection of claims under 35 U.S.C. § 112, first paragraph.

35 U.S.C. § 112, First Paragraph, Rejection of Claims 1 and 4-8

The Examiner has rejected claims 1 and 4-8 under 35 U.S.C. § 112, first paragraph as containing subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the reasons set forth in the Office Action mailed December 3, 2002.

The Examiner stated that there does not appear to be proper antecedent basis for the terms “a naturally occurring variant of ... “ in the claims. Applicants have traversed the grounds of the rejection arguing that proper antecedent basis for the term “naturally occurring” can be found at pages 7, 12, and 13 of the specification. The Examiner argues that while the cited pages in the specification describe “naturally occurring molecules”, “naturally occurring gene”, and “naturally occurring ARP, respectively, the disclosure does not provide explicit or implicit support for the recitation of the limitation “naturally occurring variant” in the claims.

Applicants Response

Applicants again submit that, having provided explicit support for the terms “naturally occurring” and “variant” in the specification, the combination of the terms in the term “naturally occurring variant” in the claims would be clearly understood to one skilled in the art as referring to a variant of SEQ ID NO:20, or of the polynucleotide encoding SEQ ID NO:2, that occurs in nature and that applicants clearly were in possession of such variants at the time the application was filed. Withdrawal of the rejection of claims 1 and 4-8 under 35 U.S.C. § 112, first paragraph is therefore requested.

35 U.S.C. 112, First Paragraph, Rejection of Claims 3 and 4

The Examiner has rejected claims 3 and 4 under 35 U.S.C. § 112, first paragraph as containing subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor(s), at the time the application was

filed, had possession of the claimed invention. The Examiner stated that there does not appear to be proper and sufficient antecedent basis in claim 3 for the limitation "from about amino acid residue K189 to about amino acid residue Q236 of SEQ ID NO:2". The Examiner stated that claim 4 recites the limitation "comprising" in line 1. There does not appear to be proper and sufficient antecedent basis to support this recitation in the claim since the original claim 1 (sic, claim 4) was drawn to an isolated cDNA "selected from ...". Therefore, the recitation of the limitation "comprising" appears to broaden the scope of the claimed invention.

#### Applicants Response

Claim 3 has been amended to delete the term "about" from the claim. As previously noted in the response filed 2/24/03, there is clear support for the fragment of SEQ ID NO:2 from amino acid residue K189 to amino acid residue Q236 at page 11, line 9 of the specification. Claim 4 has been amended to delete the term "comprising". With these amendments, applicants submit that the claims are adequately supported by the specification in accordance with written description requirements of 35 U.S.C. § 112, first paragraph, and withdrawal of the rejection is therefore requested.

#### 35 U.S.C. § 102(a), Rejection of Claim 4

The Examiner has rejected claim 4 as anticipated by Joberty et al. (Nature Cell Biology 2:531-539, 2000). The Examiner stated that the polynucleotide sequence of Joberty et al. "comprises" a sequence of the polynucleotide sequence set forth in SEQ ID NO:20 (emphasis added). The Examiner stated that since the specification teaches that "the singular forms 'a', 'an' and 'the' include plural reference unless the context clearly dictates otherwise (specification, at page 6, lines 12 and 13). Thus, the Examiner stated, consistent with example at page 6, lines 12-13 of the specification "a sequence", as recited in claim 4, is read as a plurality of sequences, or a plurality of two or more contiguous nucleotides of SEQ ID NO:20 (emphasis added).

#### Applicants Response

While the Examiner is correct in his interpretation that "a sequence" comprising SEQ ID NO:20 includes "any" or "all" sequences that minimally contain SEQ ID NO:20, his interpretation that the claim may be read as encompassing "a plurality of two or more contiguous nucleotides of SEQ ID NO:20" is unfounded. The context of the term "a cDNA" as recited in the claim clearly dictates that it minimally "comprise" the complete sequence of SEQ ID NO:20 and

nothing less. There is no implication in the claim that the claim encompasses any of two or more nucleotides of SEQ ID NO:20. In addition, however, the claim has been amended to delete the term “comprising” from the claim and the Joberty clearly does not anticipate a cDNA “selected from” (or selected from the group consisting of) SEQ ID NO:20. Withdrawal of the rejection of claim 4 as anticipated by Joberty et al. is therefore requested.

35 U.S.C. § 102(b), Rejection of Claim 4

The Examiner has rejected claim 4 as being anticipated by either Izumi et al. (Journal of Cell Biology 143:95-106, 1998) or NCI-CGAP (Database GenBank Accession No. A1079538, 1988). The Examiner stated that either Izumi et al or GenBank Accession No. A1079538 comprise a sequence of the polynucleotide sequence set forth in SEQ ID NO:20 for the same reasons as described above for Joberty et al.

Applicants Response

Applicants submit that, for the same reasons given above in response to the rejection of the claim under Joberty et al, neither Izumi et al or GenBank Accession No. A1079538 disclose the polynucleotide sequence of SEQ ID NO:20 and withdrawal of the rejection is therefore requested.

**CONCLUSION**

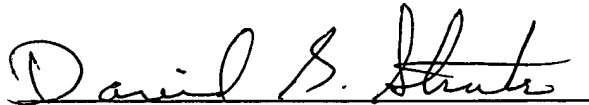
In light of the above amendments and remarks, Applicants submit that the present application is fully in condition for allowance, and request that the Examiner withdraw the outstanding objections/rejections. Early notice to that effect is earnestly solicited. Applicants again request that, upon allowance of claim 1, that claims 9-14 be rejoined and examined as method of use of the composition of matter of claim 1 that depend from and are of the same scope as claim 1 in accordance with *in Re Ochiai* and the MPEP§ 821.04.

If the Examiner contemplates other action, or if a telephone conference would expedite allowance of the claims, Applicants invite the Examiner to contact the undersigned at the number listed below.

Applicants believe that no fee is due with this communication. However, if the USPTO determines that a fee is due, the Commissioner is hereby authorized to charge Deposit Account No. **09-0108**.

Respectfully submitted,

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